



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

$$\therefore S = \frac{\cos[\theta + \frac{n-1}{2}\phi] \sin \frac{n\phi}{2}}{2\sin \frac{\phi}{2}} - \frac{\cos[\psi + \frac{n-1}{2}\rho] \sin \frac{n\rho}{2}}{2\sin \frac{\rho}{2}}$$

$$= \frac{\cos\{\alpha - \beta - \frac{n-1}{2}[\beta + \gamma]\} \sin \frac{n[\beta + \gamma]}{2}}{2\sin \frac{\beta + \gamma}{2}} - \frac{\cos\{\alpha + \beta - \frac{n-1}{2}[\beta - \gamma]\} \sin \frac{n[\beta - \gamma]}{2}}{2\sin \frac{\beta - \gamma}{2}}.$$

Also solved by A. H. Holmes.



PROBLEMS FOR SOLUTION.

GEOMETRY.

319. *Proposed by G. B. M. ZERR, A. M., Ph. D., Parsons, W. Va.*

Given the radii and the distances apart of the centers of three circles, to find the radii of the eight circles touching the three given circles.

MECHANICS.

204. *Proposed by W. J. GREENSTREET, M. A., Editor of The Mathematical Gazette, Stroud, England.*

A set of particles have coplanar motion due to mutual attractions. Each particle is now affected with a velocity V parallel to a fixed direction. How will this affect the angular momentum of the set about their centroid?

NUMBER THEORY AND DIOPHANTINE ANALYSIS.

147. *Proposed by PROF. R. D. CARMICHAEL, Anniston, Ala.*

If $4n+3$ is prime, $2(1, 2, 3, \dots, 4n) + 1 \equiv 0 \pmod{4n+3}$; and conversely. If $4n+3$ is prime, $(1, 2, 3, \dots, 2n)^2 - 4 \equiv 0 \pmod{4n+3}$; and conversely.

AVERAGE AND PROBABILITY.

190. *Proposed by PROF. R. D. CARMICHAEL, Anniston, Ala.*

A line is drawn at random across a regular $2n$ -gon; what is the chance that it crosses parallel sides?